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(71) Applicant (for all designated States except US): SHELL
INTERNATIONALE RESEARCH MAATSCHAPPIJ
B.V. [NL/NL]; Dept. IP/43, Carel van Bylandtlaan 30,
NL-2596 HR The Hague (NL).

(71) Applicant (for TJ only): FRIEDMAN, Mark, M. [IL/IL];
Alharizi Street 1, 43406 Raanana (IL).

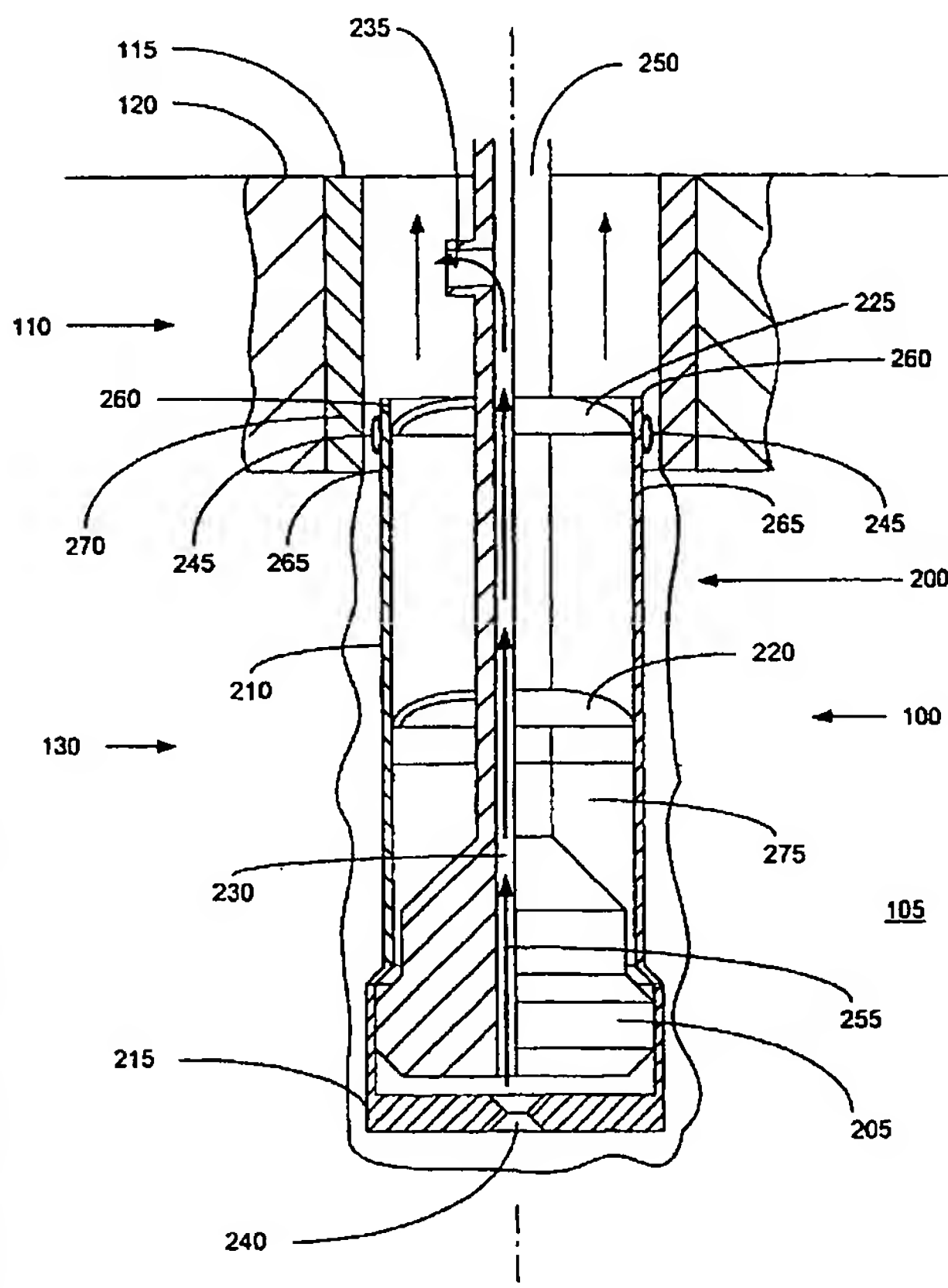
(72) Inventors; and

(75) Inventors/Applicants (for US only): COOK, Robert,
Lance [US/US]; 934 Caswell Court, Katy, TX 74450
(US). BRISCO, David, Paul [US/US]; 405 Westridge
Drive, Duncan, OK 73533 (US). STEWART, R., Bruce
[GB/NL]; Wassenaarseweg 208, NL-2596 EC The
Hague (NL). RING, Lev [RU/US]; 14126 Heatherhill
Place, Houston, TX 77077 (US). HAUT, Richard,
Carl [US/US]; 502 Lakebend Drive, Sugar Land, TX
77479-5831 (US). MACK, Robert, D. [US/US]; 22435
Vobe court, Katy, TX 77449 (US). DUELL, Alan, B.
[US/US]; 1408 Wisteria, Duncan, OK 73533 (US). FIL-
IPPOV, Andrei, G. [US/US]; 2606 Hidden Shore Drive,
Katy, TX 77450 (US).

(74) Common Representative: FRIEDMAN, Mark, M.; Beit
Samuelhoff, Haomanim Street 7, 67897 Tel Aviv (IL).

[Continued on next page]

(54) Title: EXPANDABLE CONNECTOR



(57) Abstract: An expandable threaded connection (4300) includes a first tubular member (4305), a second tubular member (4310) and a threaded connection (4315) for coupling the tubular members that includes one or more sealing members (4325).

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL00/00245

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : E21B 7/20; 17/00

US CL : 72/260; 166/207, 216, 290, 383; 175/171; 405/184

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 72/260, 264; 166/206, 207, 216, 217, 277, 286, 290, 380, 381, 382, 383; 175/57, 62, 171; 405/174, 184

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,794,702 A (NOBILEAU) 18 August 1998 (18.08.98), see the figures, Abstract and col. 2, lines 4-42.	1,3,15,19
X	US 4,483,399 A (COLGATE) 20 November 1984 (20.11.84), see Figure 2 and col. 8, lines 8-46.	1,3,23
X	US 5,348,095 A (WORRALL ET AL) 20 September 1994 (20.09.94), see col. 2, line 56 - col. 3, line 48.	1,3,19
A	US 5,791,419 A (VALISALO) 11 August 1998 (11.08.98), see entire document.	25
A	US 5,439,230 A (ABRAMS) 08 August 1995 (08.08.95), see entire document.	25



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
E earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z* document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means	
P document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

17 AUGUST 2000

Date of mailing of the international search report

18 SEP 2000

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

GEORGE SUCHFIELD *Diane Smith*

Telephone No. (703) 308-2168

INTERNATIONAL SEARCH REPORT

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PCT/IL00/00245

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,366,012 A (LOHBECK) 22 November 1994 (22.11.94), see entire document.	1,3,15,19
A	US 5,197,553 A (LETURNO) 30 March 1993 (30.03.93), see entire document.	23

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL00/00245

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1,3,15,19,23 and 25

Remark on Protest

☐
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group 1, claim(s) 1,3,15,19,23 and 25, drawn to a method and apparatus for creating a casing in a wellbore or joining/coupling two tubular members by injection of a fluidic material.

Group 2, claim(s) 2,7 and 24, drawn to a method and apparatus for expanding a tubular member including three fluid passages.

Group 3, claim(s) 4 and 30, drawn to a tubular liner including sealing members.

Group 4, claim(s) 5 and 6, drawn to a wellbore casing or liner including a cured fluidic sealing material.

Group 5, claim(s) 8-12 and 38, drawn to a wellhead comprising an outer casing and a plurality of inner casings coupled thereto by expanding or contact pressure.

Group 6, claim(s) 13 and 16, drawn to a wellbore casing of plural tubulars, all of equal inside diameter.

Group 7, claim(s) 14, drawn to a well bore casing comprising a tubular member having both a thick and a thin section.

Group 8, claim(s) 17, drawn to an apparatus for expanding a tubular member including a pressure chamber, an expansion cone and releasable supports.

Group 9, claim(s) 18 and 20-22 drawn to an apparatus comprising coupled solid and slotted tubulars, and a shoe, and method of use.

Group 10, claim(s) 26, drawn to an apparatus for emplacing a tubular liner in a well including a drilled wellbore and positioned tubular liner.

Group 11, claim(s) 27-29,32-37 and 40-42, drawn to a method and apparatus for expanding a tubular member and coupling to an existing structure.

Group 12, claim(s) 31 and 39, drawn to an apparatus for expanding a tubular comprising a piston and an annular chamber.

Group 13, claim(s) 43-58, drawn to an apparatus comprising tubulars coupled with a threaded connection having sealing members.

The inventions listed as Groups 1-13 do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Each of the above groups specify or include a special technical feature(s) which is not present or included in the other groups. For example, the Group 2 invention calls for three fluid passages, operatively coupled, which is not present in the other groups. Group 3 calls for only a single tubular, which must include a sealing member and pressure relief passages. Group 10 only comprises a drilled wellbore and a tubular liner positioned therein. Only Group 7 calls for a tubular member with both a thin and thick section; only Group 12 calls for an apparatus comprising a piston and annular chamber; only Group 10 calls for coupled solid and slotted liners, plus a shoe; while Group 14 comprises tubulars coupled with a threaded connection which further comprises specific or exemplary sealing means that are not specified in any of the other inventions listed.